

ABSTRACT OF THE DISCLOSURE

A two-inductor boost converter includes an integrated magnetic core having a three-legged flux-conducting element with an energy-storing gap, for example in the center leg. Two primary windings are disposed on respective legs, such as the outer legs, and are coupled in parallel to one input terminal of the converter. Two series-connected secondary windings are also disposed on the flux-conducting element, and are connected to rectification and filtering circuitry which may have full bridge, full wave, or voltage doubler configuration. Primary-side switches are coupled in series between each primary winding and the other converter input terminal. Control circuitry generates control signals for the primary-side switches, providing for a desired degree of overlapped conduction during each operating cycle along with periods of non-conduction that result in transferring electrical energy to the load. The integrated magnetic core can include additional windings for ancillary functions, such as for flyback operation during start-up.

301301-1